

ON THE GEOMETRID GENUS *CATORIA* MOORE.

By LOUIS B. PROUT.

THE genus *Catoria* was erected by Moore in 1887 (*Lep. Ceyl.* iii. 414), under the "family" heading *Boarmiidae*, for two species which were said to have the ♂ forewing "comparatively shorter and broader than in *Cymatophora* [type *roboraria* Schiff.], *Boarmia* [type *consonaria* Hb., sec. Moore ex err., *tom. cit.* 412] and *Alcis* [type *repandata* Linn.]; the apex less produced and somewhat rounded; cell shorter, costal vein bifid near its end; first subcostal . . . joined to middle of the costal branch; . . . hindwing short; exterior margin almost even, convex; cell nearly half the length; first subcostal [SC²] close to end; . . . body short, rather stout; palpi obliquely projected in front, laxly clothed beneath, apex conical; antennae broadly bipectinate to one-third the tip [*sic*], the branches very long and finely ciliated; legs long, more slender than in above genera, spurs long, slender." He selected for its type *Boarmia sublavararia* Guen. (*Spec. Gén. Lép.* ix, 256), which—as is shown by his citations and other works—embraced both the true *sublavararia* and its Ceylon representative; and added (p. 415) *procursaria* Walk. (1860), an outlier with similar venation but with different ♂ antenna and smooth face, probably standing on a somewhat different line of evolution (*Boarmia-Serraca* group).

By later systematists the genus (*sens. str.*) has been forced into *Boarmia* sect. *Alcis* (Hmps., *Faun. Ind. Moths*, iii. 270) or divided between *Ectropis* and *Diastictis* (Meyr., *Proc. Linn. Soc. N. Sth. Wales* (2) vi. 333, *E. camelaria* Guen.; *Tr. Ent. Soc. Lond.* 1897, p. 75, *D. sublavararia* Guen.) or between *Ectropis* and *Boarmia* (Turn., *Proc. Linn. Soc. N. Sth. Wales*, xlii. 333, *E. hemiprosopa* Turn. and *camelaria* Guen.; *tom. cit.* 359, *Boarmia viridaria* Pagenst.). Warren alone seems to have been conscious of its perfect homogeneity as regards the Indo-Australian Region; but he erred in the opposite direction by including a Neotropical group which has only a very general and partly superficial resemblance (the group of *Boarmia bipennaria* Guen.).

Apart from the pattern of both upper- and underside, which shows remarkably little deviation throughout, the genus *Catoria* is characterized absolutely by the ♂ antennal structure, to which Meyrick and Turner have called attention (see the references under *Ectropis*, *supra*). The pectinations, which are very long but leave free the apical one-third or two-fifths of the antenna, arise in slender pairs at the extreme ends of each segment and are always in part fused into single stouter pectinations, in part free, in part fused for a longer or shorter distance proximally but separating apically. The face is more or less rough-scaled, generally with a well-defined cone below. The hindtibia of the ♂ is dilated, though not extremely, the ensheathed hair-pencil therefore more or less slender. The fovea is well developed in the ♂. The forewing has SC^{1,2} very long-stalked or (in *hemiprosopa* Turn. and in the ♀♀ of several species) coincident, in the ♂♂ with the stalk connected by a bar (Moore's costal branch) with C or very rarely anastomosing slightly, in the ♀♀ nearly always anastomosing more or less strongly. The hindwing has the termen somewhat crenulate, but more weakly than in the majority of the *Boarmia* group. The coloration is

generally white, grey or green, scarcely ever brown; cell-spots above strongly developed, that of the hindwing often ocellated, beneath enlarged on the forewing, often also on the hindwing, or with the ocellus solidified into a strong black spot; lines of upperside double, excepting the median, and on the hindwing generally the antemedian; proximal postmedian generally and proximal subterminal always macular, the latter strong; underside white or oftener more or less suffused with grey or drab, without lines but nearly always with complete or incomplete subterminal or terminal dark bands, in which white or very pale spots persist at least at apex of forewing and midterms of both wings.

The ♂ genitalia, as noted in Nov. Zool. xxxv, 75, show very good differential characters, notably in the armature of the valves, though all have the sacculus free and very strong.

In order to make clear the phylogenetic unity of the group, which has spread almost throughout the Indo-Australian Region but is entirely unrepresented elsewhere, it appears highly desirable to treat it as a genus. I believe I have examined all the forms yet known, and as there is little hope of my finding an opportunity to monograph them, I have prepared a general survey and propose to name the undescribed ones except where the material is at present inadequate.

KEY TO THE SPECIES.

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|---|------------------------------|
| 1. Colour green | 2 |
| Colour not green | 3 |
| 2. Hindwing with cell-spot ocellated | 7. <i>parva</i> Butl. |
| Hindwing with cell-spot not ocellated | 6. <i>delectaria</i> Walk. |
| 3. Shape of ♂ abnormal; underside bright brown | 3. <i>lucidata</i> Warr. |
| Shape of ♂ normal or nearly so; underside white, grey or drab | 4 |
| 4. Colour dark brown or dark-mottled, beneath without dark apical or distal band | 4. <i>saturata</i> Prout. |
| Colour not so, beneath with dark apical or distal band | 5 |
| 5. Forewing beneath at apex blackish | 8. <i>subalbata</i> Warr. |
| Forewing beneath at apex white or whitish | 6 |
| 6. Face sharply half white and half black; forewing with SC ^{1,2} coincident | 13. <i>hemiprosopa</i> Turn. |
| Face not so; forewing with SC ^{1,2} long-stalked | 7 |
| 7. Face wholly black | 8 |
| Face partly white | 10 |
| 8. Cell-spot of hindwing large, oblong | 9. <i>tamsi</i> Prout. |
| Cell-spot of hindwing small, round or punctiform | 9 |
| 9. Sacculus strongly dentate on innerside; wings beneath dark, with white midterminal spot narrow | 11. sp.n. (Ceylon) |
| Sacculus with only a few irregular teeth; wings beneath generally less dark, with white more extended | 12. <i>sublavaria</i> Guen. |
| 10. Cell-spot of hindwing ocellated | 11 |
| Cell-spot of hindwing not ocellated | 12 |
| 11. Underside white or whitish proximally | 2. <i>camelaria</i> Guen. |
| Underside smoky proximally | 1. <i>olivescens</i> Moore. |
| 12. Underside predominantly white | 10. sp.n. (Timor). |
| Underside predominantly drab | 5. sp.n. (Choiseul). |

1. *Catoria olivescens* Moore.

This species, readily recognizable by its dusky olive-grey tone, the ocellated cell-mark, and the broadly darkened borders beneath, evidently represents *camelaria* Guen. in the Indian subregion (cf. Nov. Zool. xxxv. 73-4); but a careful comparison of the ♂ genitalia shows a sufficiently wide difference in the sacculus to call for specific separation. In both, the sacculus arm is nearly as long as the valvula and has a prong on the costal side; but whereas in *olivescens* this is placed beyond the middle and the margin of the sacculus between it and the apical prong forms a regularly curved concavity, in *camelaria* it is more proximal and projects more sharply from the arm. Both the species, together with some others to be referred to later, have a process (inward) from the "costal fold" terminating in two (or sometimes on one of the valves three—i.e. asymmetrical) slender spines. The uncus is weak, blunt, with two groups of bristles at extremity, the gnathos weak.

Thus far I have only recognized two races.

(a) *C. olivescens olivescens* Moore.

Catoria olivescens Moore, *Lep. Atk.* 244 (1888) (Darjiling).

"*Boarmia sublavaria* Guen." Butl., *Ill. Het.* vii. 21 (1889) (Dharmasala).

Fairly common in Sikkim, Bhutan and Assam, apparently rare in N.W. India. Also known to me from Perak and Formosa.

(b) *C. olivescens longistigma* Prout.

Catoria olivescens longistigma Prout, *Bull. Hill Mus.* iii. (1) 38 (1929) (Buru).

Distinguished by its whiter admixture above, with elongate cell-mark of hindwing (more as in *tamsi* Prout) and dark, broad-bordered underside.

Buru and Ceram. I now suspect the ♀ "*camelaria*" from Buru (*loc. cit.*) is really the ♀ to this *olivescens* race, although the double element in the fauna of this island renders it by no means impossible that it may provide a meeting-place for the two allies.

2. *Catoria camelaria* (Guen.).

This is a widely distributed species, its range extending from Timor and perhaps Buru (*vide supra*) to the Loyalty Islands or probably Fiji. It is characterized by the ocellated cell-spot of the hindwing, the pronounced broadening of the black border on the anterior part of the forewing beneath and in most of the forms by the strong contrast between the whiteness of the ground-colour and the sharpness of the dark markings. The face is never wholly black, as in *sublavaria* Guen. and *tamsi* Prout, or half white and half black, as in *hemi-prosopa* Turn. Usually it is crossed by a not very sharply defined black band about or above the middle.

In Australia, whence *camelaria* was first described, it seems strongly variable, and this, taken in conjunction with the fact that only scanty and sometimes poor material is yet to hand from some of its other localities, renders it difficult—or indeed impossible—to give an adequate analysis of its geographical variation. The following is the best that I can yet offer.

(a) *C. camelaria camelaria* (Guen.).

Boarmia (?) *camelaria* Guen., *Spec. Gén. Lép.* ix, 256 (1858); Oberth., *Et. Lép.* vii, fig. 1660 (1913) (Australia).

Cleora velutinaria Walk., *List Lep. Ins.* xxxv, 1580 (1866) (Moreton Bay [& Swan River, *err. loc.*]).

The variation consists chiefly in the ground-colour, which is sometimes brownish instead of white (resulting in a marked superficial resemblance to *hemiprosopa* Turn.) and in the extent of the dark submarginal bands beneath, which in any case become obsolescent posteriorly on the hindwing but may also disappear from the entire hindwing and even, in extreme cases, be reduced on the forewing to a small subapical patch.

General in Queensland and reaching Newcastle, N.S.W.

(b) *C. camelaria timorensis* subsp.n.

♂♀, 39–44 mm. On an average smaller than *C. camelaria* and with relatively shorter forewing, at least in the ♂. Tone brownish. Cell-dot of forewing strong, ocellus of hindwing more perfect than in most *c. camelaria*. Forewing beneath with the cell-spot smaller than in *c. camelaria*, the distal band generally more uniform, with the white apical patch reduced.

Dutch Timor: Oinanissa (loc. typ.), November–December 1891 (W. Doherty), 2 ♂♂, 2 ♀♀. Portuguese Timor; Dili, May 1892 (W. Doherty), 2 ♂♂. All in coll. Tring Mus.

(c) *C. camelaria baryconia* Prout.

Catoria camelaria baryconia Prout, *Bull. Hill Mus.* iii, (2) p. ? (in the press) (New Guinea).

A well-differentiated race, represented in the Tring Museum from the Snow Mountains, Sattelberg and Owen Stanley Range. A very similar ♀ from New Ireland cannot be named without further material.

(d) *C. camelaria carbonata* Warr.

Catoria camelaria carbonata Warr., *Nov. Zool.* iii, 402 (1896) (Lifu).

In size and shape agreeing with *c. timorensis* but white, on the ♂ upperside less darkly marked than *c. camelaria*, in both sexes beneath with the subapical patch of the forewing strongly blackened, more roundish, not or scarcely continued to the costal margin.

Only the original series of 3 ♂♂, 1 ♀ from the Loyalty Islands yet known to me.

In addition to the forms detailed above, I have recently seen a ♀ from Fiji which I believe to be referable to this species and, according to a hurried note made in Berlin, I suspect that 3 ♀♀ from Palau, in poor condition, recorded by Semper (*Iris*, xviii, 266) as "*Boarmia sublavaria* Guen.," also belong here; his fourth ♀, mentioned as darker, is a *Cleora*.

3. *Catoria lucidata* Warr.

Catoria lucidata Warr., *Nov. Zool.* xii, 15 (1905) (Guizō).

An interesting species, nearly like *camelaria* in structure, but with narrower, more acute forewing, less regularly rounded hindwing, punctiform cell-dot of the latter, browner suffusion above and bright brown underside, inclining towards tawny-olive. In the 5 known ♂♂, the connective bar from C of the

forewing reaches the stalk of $SC^{1,2}$ very little before bifurcation; in the one ♀ the bar is lost in a short anastomosis. The ♂ genitalia have not been mounted, but show the same general scheme as *camelaria*; the long sacculus arm is produced to a sharp spine, but apparently has not the strong lateral prong of the two preceding.

Solomon Islands: Choiseul (2 ♂♂), Vella Lavella (1 ♂), Guizo (1 ♂), Rendova (1 ♂, 1 ♀).

4. *Catoria saturata* Prout.

Catoria saturata Prout, *Bull. Hill Mus.* iii (1) 39 (1929) (Buru).

This rather broad-winged species is recognizable at once by its deep olive-brown colour, particularly in the ♂, the ♀ being more mottled with white; it further differs from all the other *Catoria* in wanting the subapical or terminal band beneath. The sacculus arm, as in the preceding species, is produced into a slender curved spine; the lateral prong is more distally placed than in them, large, directed backward; the two spines of the costal process are rather strongly elongate.

Confined, so far as known, to Buru and Ceram.

5. *Catoria misticia* sp.n.

♂, 37 mm. Face white, the upper $\frac{1}{3}$ or $\frac{1}{4}$ black-brown, somewhat encroached upon by whitish in the centre. Palpus black, slenderly white beneath. Vertex and antennal shaft white; pectinations (in the type) almost regularly cleft near their tips only, except the inner (left-hand) series of right antenna, which are mostly cleft to base. Thorax and abdomen above dirty whitish, with brown dots; beneath more smoky. Hindtibia somewhat dilated, with slender pencil.

Forewing with costa rather straight, termen bowed, strongly oblique, moderately long; $SC^{1,2}$ very long-stalked, the stalk arising from cell, with the usual connecting bar to C short; pale gull-grey, vaguely dappled with brownish and with scattered darker scales; cell-dot small, sharply blackish, indefinitely encircled with rather deep gull-grey; lines strongly broken into brown vein-spots or short dashes, the three principal arising from black costal dots and somewhat blackened on the veins; postmedian rather strongly excurved in its anterior part, as in the most curved-lined forms of *camelaria* Guen.; its distal duplicating line only showing as weak interneural spots.—*Hindwing* similar, the cell-dot enlarged, round, black, not surrounded with grey.

Underside light drab, mixed with drab-grey or pale drab-grey proximally, darkening distally; both wings with black cell-spot, that of hindwing as above, that of forewing larger; forewing with large apical and very small midterminal spot clear white, hindwing with the terminal white more extended, but broader in cellule 3 than at apex, strongly recalling *delectaria plesia* Swinh.

Solomon Islands: Choiseul, N. side, December 1903 (A. S. Meek), type in coll. Tring Mus., unique.

6. *Catoria delectaria* (Walk.).

Widely distributed and relatively not very variable, yet probably divisible into more races than have yet been differentiated. Unfortunately only Walker's poor type, a ♀, is yet known to me from the Aru Islands; this certainly agrees approximately with the Moluccan and Papuan forms, but any attempt to sort

these further must wait upon the rediscovery of the species in the type locality. The only strikingly distinct race is that from Mefor, here described. I have found also a difference in Swinhoe's *plesia*, from Sumatra, which enables me to quote it as a provisional race. Specimens from Queensland are small, but are closely approached in all respects by those from the Louisiades.

Except in very faded examples, the bright green colour marks out this species very prominently. The only other green one is the following, which, besides being of a greyer green, is longer-winged and has the cell-spot of the hindwing ocellated.

The proximal part of the sacculus is broad and strong, with a lateral prong (somewhat as in *camelaria*) before its narrowing form the "sacculus arm," which is widened at its curved extremity, in some positions suggesting a golf club. The harpe is a 2- or 3-spined process from the costal fold, similar to those of the preceding species. The costal region of the valva has a spined field somewhat similar to that of *sublavaria*, but more elongate. The uncus is short, with a foreshadowing of the dorsal-lateral spines which develop in *sublavaria*.

(a) *C. delectaria plesia* (Swinh.).

Ophthalmodes plesia Swinh., *Ann. Mag. Nat. Hist.* (7) xx, 80 (1907) (W. Sumatra).

Swinhoe's unique type ♂ and a fairly similar ♀ from Nias measure 40 mm., have the cell-spots moderately large, the underside not such a dark green-grey as in the other forms and with some midterminal white, which they do not show, in addition to the apical white spot which is common to all.

(b) *C. delectaria delectaria* (Walk.).

Ophthalmodes delectaria Walk., *List. Lep. Ins.* xxxv, 1595 (1866) (Aru).

Boarmia viridaria Pagenst., *Jahrb. Nass. Ver. Nat.* xli, 168 (sep. p. 84) (1888) (Amboina).

Selidosema viridis Turn., *Tr. Roy. Soc. S. Austral.* xxx, 133 (1906) (Queensland) (subsp. ?).

Known to me from Celebes (one ♀, probably racially separable), Sula Mangoli (one poor ♀), Halmahera (Pagenstecher, 1897), Burn, Amboina, Dammer Island, Misol, Dutch and British New Guinea, Trobriand Islands, Goodenough, Louisiades, North Queensland, St. Matthias Island (small form), Admiralty, Dampier, New Hanover, New Ireland, Feni Island, New Britain and Nissan Island (Solomons). Probably the Bismarck Archipelago provides some differentiable races.

(c) *C. delectaria vernans* subsp.n.

♂♀, 33-43 mm. Upperside of a smooth, even green (light grape green or very slightly bluer), with the irroration and transverse markings reduced, the median line of the forewing obsolete or nearly so. Underside of a less greenish grey than most of the other forms.

Mefor (W. Doherty), 6 ♂♂, 5 ♀♀ in coll. Tring. Mus. Also 1 ♂, 4 ♀♀ in coll. Joicey (Pratt Bros.), besides a couple of the original Doherty series.

7. *Catoria parva* (Butl.).

Ophthalmodes parva Butl., *Ann. Mag. Nat. Hist.* (5) xx, 242 (1887) (Ulaua, Solomons).

This species, incorrectly sunk by Swinhoe (*Cat. Lep. Het. Oxf. Mus.* ii, 294) to *delectaria* Walk., has been sufficiently differentiated in the notes given above. In addition, the ♂ abdomen is distinguished by having a pad of buff-tinged hair

on the 6th-7th sternite. The face has the upper part narrowly or interruptedly blackish, chiefly at the corners.

Generally distributed in the Solomon Islands, apparently with but little variation. The Tring Museum has it from Bougainville, Treasury, Choiseul, Isabel, Tulagi, Florida I., Guadalcanar, Vella Lavella, Guizo, Rendova and New Georgia.

8. *Catoria subalbata* Warr.

Catoria subalbata Warr., *Nov. Zool.* xii. 15 (1905) (E. Sumatra).

Face predominantly pale. Forewing with the stalk of $SC^{1,2}$ just stalked with that of SC^{3-5} (as in Warren's type) or from the cell (as is usual in all the preceding species). Cell-spot of both wings large, fairly equal, not ocellated. Underside white, with a characteristic blackish apical patch which does not, as in normal *Catoria*, contain a white spot at the apex itself. Uncus somewhat as in *camelaria*, but with the bristles more definitely divided into a bunch at either side; sacculus arm a good deal shorter than valvula; harpe with three short stout spines.

Only four specimens, all ♂, are yet known; an old and rather worn example, merely labelled Sumatra, has stood for many years in the British Museum, where it bore—from the early 'nineties until the present year—the manuscript name of *albida* Warr.; two fine specimens were collected by the Pratt brothers in 1921 in the Korintji district, S.W. Sumatra, and are now in the Joicey collection.

9. *Catoria tamsi* Prout.

Catoria tamsi Prout, *Nov. Zool.* xxxv. 73 (1929) (Perak).

No further material of this recently discovered species has yet come to hand. From similar forms of *camelaria* it is best distinguished by the wholly black face and the *sublavaria*-like underside; from *sublavaria* by the strong coarse irroration and the large, long-oval cell-mark of the hindwing; from both by the very different genitalia. Sacculus arm rather long, but very strongly curved, therefore not approaching the end of the valvula; process from costal fold terminating in a group of short broad spikes; uncus with two long horns. The subcostal venation of the forewing varies in the same way as in *subalbata*.

Known from Perak, Singapore and Sumatra.

10. *Catoria cinygma* sp.n.

♂, 40 mm. Similar to a small, weakly marked *sublavaria sublavaria* Guen. Face with the lower part (less than one-half) whitish, shading through brown to blackish above. Uncus long, tapered to a single point, more as in a *Cleora*; valva narrow, with the spinose patch elongate.—*Forewing* rather narrower than in typical *sublavaria*; stalk of SC^2 from the cell, SC^1 , by loss of its base, from C; ground-colour whiter, with the shadowy light-brown band outside the postmedian relatively better developed, scarcely interrupted; cell-dot smaller.—*Hindwing* with similar distinctions.—Underwide white, the hindwing almost unmarked, with a minute black cell-dot, the forewing with a much smaller cell-spot than in *sublavaria*, the dark border subapical only, consisting of a narrow band from costa to SC^5 and a weaker terminal patch between the radials; terminal dots distinct anteriorly, becoming obsolescent.

Dutch Timor: Oinanissa, November–December 1891 (W. Doherty), type in coll. Tring Mus.

The unique type is worn, but easily recognizable.

11. *Catoria halo* sp.n.

♂♀, 40–51 mm. Closely like *sublavaria* Guen.—*Forewing* with the stalk of SC^{1,2} (the coincident SC^{1,2} in the ♀) arising from the cell (in *sublavaria* generally short-stalked or at least connate with that of SC^{3,5}); cell-spot above showing as a larger and generally more conspicuous grey halo round the black dot.—*Hindwing* with the median line more constantly near the cell-spot than in *sublavaria*, here more or less thickened, sometimes producing together with the spot an impression of the ocellus of *olivescens* Moore.—Underside more decidedly and evenly brownish drab or cinnamon-drab than in any but the most extreme forms of *sublavaria*, with larger black cell-spots (that of forewing well rounded, not oval) and narrower, more wedge-shaped white terminal spot behind R³.

Ceylon, fairly common, the type from Pundaloya, April 1897 (E. E. Green) in coll. Tring Mus.

Probably the Ceylon representative of *sublavaria*, with which it has always been united. The uncus, which in that species develops two bunches of broad blunt spines (5 or more in each group), here has each bunch fused into a single spine, much lengthened; arm of sacculus differently shaped, strongly dentate on its inner (upper) edge as in no other *Catoria*; “signum” of ♀ very differently formed, considerably larger, with a much deeper central excavation, etc. In order to make more definite the community of origin, Mr. Tams would advocate calling *halo* a subspecies of *sublavaria*, but the morphological differences are pronounced enough to preclude any likelihood of syngamy in the event of their meeting again. On the other hand, a veritable race of *sublavaria* from a much more remote locality (New Guinea) has retained the venation and genitalic structure of the North Indian name-type.

12. *Catoria sublavaria* (Guen.).

This is one of the most widely distributed of all the *Catoria* species, reaching from N. India to the Bismarck Archipelago, although until recently it had been little noticed beyond the confines of British India. Hampson (*Faun. Ind.*, *Moths*, iii. 270) adds only Borneo, Meyrick (*Tr. Ent. Soc. Lond.* 1897, p. 75) Sambawa, Swinhoe (*Cat. Lep. Het. Oxf. Mus.* ii. 293) Singapore, Semper (*Reisen Philipp.* (2) vi. 614) the Philippines. I suspect that Sambawa and the Philippines may yield differentiable races but have only seen one example of each, the Sambawa ♂ rather brown, a Luzon ♀ large, broad-bordered beneath. In any case there is evidently considerable geographical variation and the erection of some new races here seems justified.

Attention has already been drawn to the constancy of the black face and the strong tendency of the two subcostal groups to arise from a common stalk. In the ♀♀ both of this species and the preceding the 1st and 2nd subcostals seem to be invariably coincident instead of long-stalked. The ♂ valva is characterized by the branching of the long, strong sacculus, near its distal end into a broad, bluntly pointed outer arm and a long, somewhat curved, tapering inner spike;

also by the structure of the process from the costal fold, which develops a field of unequal, rather short but strong spines. The uncus is weak, but furnished with dorsal spines (see under *halo*) which suggest a possible affinity with the genus *Serraca* Moore, including the "*Boarmia*" *punctinalis* (Scop.) group, and perhaps *Pseudoboarmia* McDunnough.¹

(a) *C. sublavararia sublavararia* (Guen.).

Boarmia sublavararia Guen., *Spec. Gén. Lép.* ix. 256 (1858); Oberth., *Et. Lép.* vii. fig. 1659 (1913) ("Central India" [? Silhet]) (*subflavararia* ex err., Oberth., *tom. cit.* 661).
Boarmia spilotaria Snell., *Tijd. Ent.* xxiv. 75, t. viii, f. 5, 5a (1881) (Celebes).

The name-typical form, beautifully figured by Culot in Oberthür's *Études*, varies little on the upperside, though some examples are whiter; beneath, the deviation is more pronounced, the drab ground-colour sometimes giving place to an almost clear white. Both extremes are sometimes found in the same locality, e.g. in Assam, but there are as yet no data available for judging whether the variation may be individual or seasonal.

C. sublavararia from Burma, Malaya, Borneo, Java and Formosa have not yet been differentiated from the North Indian name-type. Neither does the single Celebes example before me—a ♂ from Oberthür collection—show any tangible distinction, though the name *spilotaria* Snell. is waiting to be revived for it if necessary.

(b) *C. sublavararia tenax* subsp.n.

♂, 42 mm. Smaller than name-typical *sublavararia* Guen. Forewing with the stalk of SC^{1,2} from the cell. Both wings above more uniformly suffused with olive-brownish than in *s. sublavararia*. Hindwing with the median line close to the cell-dot, as in *C. halo* Prout (*supra*). Underside as dark as in *halo*, but with nearly the typical maculation of *sublavararia*.

S. Andamans, May–June 1927 (Ferrar coll.), type in Mus. Brit., presented by the Agricultural Research Institute, Pusa. Great Nicobar, 2 ♂♂ in Mus. Tring, still smaller (37 and 39 mm.) but otherwise quite similar.

This form might, especially on account of the venation, have been taken for a race of *C. halo* rather than of *sublavararia*, but the genitalia of the type have been examined by Mr. W. H. T. Tams and agree with the last-named.

(c) *C. sublavararia psimythota* Prout.

Cutoria sublavararia Rothsch., *Lep. Brit. Orn. Un. Exp.* p. 86 (1915) (Dutch New Guinea).
Cutoria sublavararia (Guen.) *psimythota* Prout, *Bull. Hill Mus.* iii. (2) p. 110 (New Guinea).

A fine and very distinct race, widely distributed in New Guinea, at least near the coast. The Tring Museum possesses examples from Kapaur, Base Camp (Utakwa River), Humboldt Bay and Kumusi River.

(d) *C. sublavararia subnata* subsp.n.

♂, 46–48 mm.—Forewing appreciably more pointed, the termen more oblique; the blue-grey tone predominant, the drab markings, though sharp, being somewhat less diffused; cell-dot rather large; postmedian not very sinuous, the dots large, the band outside them narrow.—Hindwing with the cell-dot enlarged into a spot.—Underside rather dark.

¹ Cf. Pierce, *Genit. Geom. Brit.* p. 16, "*Boarmia consortaria* Fb.,"; McDunnough, *Studies N. Amer. Cleorini*, pp. 21, 22.

Bismarek Archipelago: Feni Island, E. of New Ireland, July 1924, type; Talasea, New Britain, January 1925, 1 ♂. Both in coll. Tring Mus., collected by A. F. Eichhorn.

The shape and tone bring about a superficial resemblance to some forms of *camelaria camelaria* and *c. baryconia*, from which, apart from the genitalia, the black face at once distinguishes it. The stalk of SC^{1,2} arises from the base of that of SC³⁻⁵ in the type, but is just separate therefrom in the New Britain example.

13. *Catoria hemiprosopa* (Turn.).

A rather small species, generally distinguishable, at least in the ♂, by the appreciably narrower and acuter forewing. Although Dr. Turner, in erecting it, only knew two species of the genus, the two differential characters which he emphasized hold throughout; namely, the coincidence (in both sexes) of SC¹ and SC² of the forewing and the sharply defined coloration of the face, with upper half black, lower half white. The genitalia are likewise exceedingly distinct: the sacculus arm is short and broad, tapering rather rapidly and with only a very small hardened point; the process from the costal fold terminates in a single, elongate spine. Uncus with two long dorsal arms.

This species has been little noticed, but proves to be extremely widely distributed, though never plentiful. The colour variation is considerable, at least in the ♂, and it is possible that even the single race which has been differentiated will not prove ultimately tenable.

(a) *C. hemiprosopa affinis* Prout.

Boarmia (Catoria) affinis Prout, *Nov. Zool.* xxxii. 58 (1925) (Malay Peninsula).

Catoria hemiprosopa affinis Prout, *Nov. Zool.* xxxv. 74 (1929).

The ♂ in general rather more pointed-winged than in the name-type. Ground-colour whiter. Described from Penang, Singapore and Engano, few examples known. A ♀ from N. Borneo, in Mus. Tring, and one from Ceylon, in Mus. Brit., seem conspecific, judging by the face.

(b) *C. hemiprosopa hemiprosopa* (Turn.).

Ectropis hemiprosopa Turn., *Tr. Roy. Soc. S. Austral.* xxviii. 230 (1904) (Queensland).

Besides North Queensland and Queensland, Waigeu, New Guinea (Kapaur, Upper Setekwa River, Milne Bay), Manus, New Britain and the Solomon Islands (Bougainville, Vella Lavella, Rendova, S. Christoval) have yielded a few specimens—mostly in coll. Tring Mus.